

## THE TRANSFER OF ADULT SHAD

James E. Sykes  
U. S. Fish and Wildlife Service  
Beaufort, North Carolina

AFTER THE successful transfer of fingerling shad for a distance of 300 miles (Sykes 1950) to the Fish and Wildlife Service Laboratory at Beaufort, North Carolina, it was decided that the same method would be used to bring adult shad to the station for an evaluation of experimental tagging methods and for study of the spawning and feeding habits and growth of these fish.

For this transfer, shad taken from pound nets were used, as these fish could be expected to be in better condition for handling than those taken from gill nets. The best supply of shad was taken from pound nets located near Bath, North Carolina, 95 miles from Beaufort. One load of shad was obtained from Roe, North Carolina, but the nets there were an unreliable source of supply because they

were subject to weather conditions and serviced by poor roads.

In transfer, the shad were taken from the pound nets and placed in a washtub of water. Immediately after the net was fished, the tender left for shore--a trip of about 15 minutes--and there the shad were transferred to the tank on the laboratory truck. At Bath, the tank had been filled previously with about 200 gallons of water from the same areas, and so the temperature and salinity were the same in the tank as in the river. At Roe, unfortunately, the beach and the nets were not accessible to the truck, and water had to be pumped from a nearby canal where the temperature was high and the water turbid.

The table presents the case histories of the four trips made.

FOUR TRANSFERS OF ADULT SHAD

Trip No.	Date	Source of fish	Travel history				Hours pump used	Pounds of ice	Shad hauled		Shad survived	
			Beginning		End				Roe	Buck	Roe	Buck
			Time	Water °F.	Time	Water °F.						
1	4/17	Bath, N. C.	6:00 a.m.	54.5	10:15 a.m.	56.4	1.5	0	3	3	1	2
2	4/18	Bath, N. C.	5:30 a.m.	59.1	9:50 a.m.	57.2	1.75	50	1	5	1	5
3	4/19	Roe, N. C.	12:45 p.m.	69.8	2:30 p.m.	60.8	1.0	50	4	2	1	2
4	4/25	Bath, N. C.	6:00 a.m.	57.2	9:00 a.m.	53.7	1.75	150	6	1	4	1
Totals									14	11	7	10

This experiment is a part of the shad investigation of the Fish and Wildlife Service, an investigation which is being carried on to furnish the Atlantic States Marine Fisheries Commission with information for fishery regulations.

To summarize the results, 50 percent of the original six shad hauled on trips No. 1 and 3 survived, 71 percent of an original seven in trip No. 4 survived, and 100 percent of the six shad in trip No. 2 survived. Female shad showed poor

survival, only 50 percent of the 14 reaching the laboratory alive. On the other hand, 91 percent of the 11 male shad were moved successfully.

There is little apparent reason for the good survival in the second trip. Actually, the fish were on the road longer than in any of the other trips. The pump operated 40 percent of the time as compared with 35 percent for the first trip, 52 percent for the third trip, and 58 percent for the fourth. The temperature was close to the average for all trips. Finally, the success of the second trip is no doubt due in part to the composition of the load. Five of the six fish hauled were males, which are significantly harder than females for transporting.

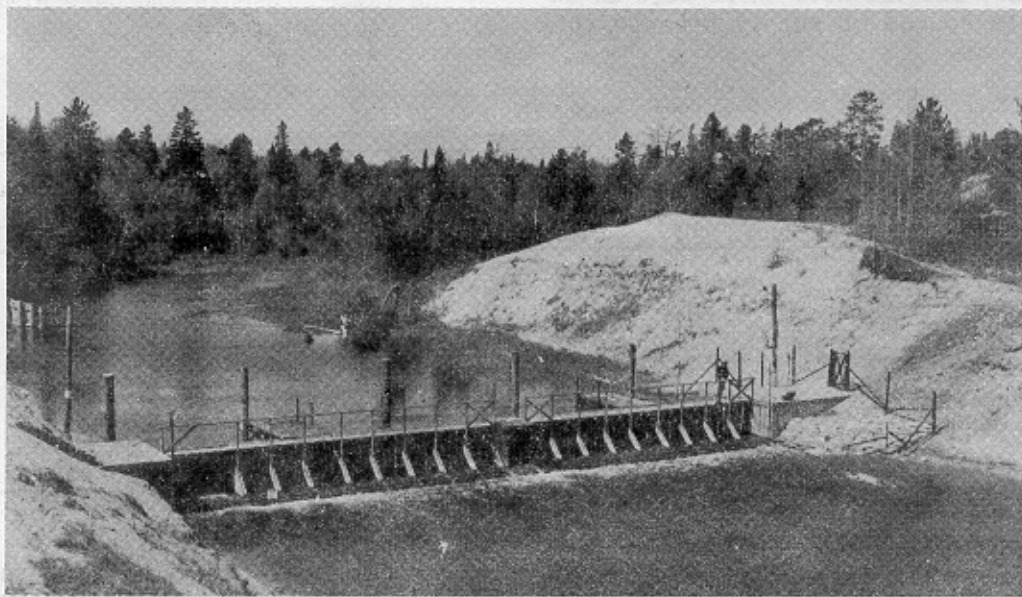
The results from this work upset the general opinion that it is impossible to transport adult shad or to keep them

alive in confinement. We successfully moved 17 of an original 25 shad (averaging 42 centimeters in length) for distances up to 95 miles. The 17 shad remained alive and very active for some time, having completely recovered from the effects of transfer. It was not until June 3, when the water temperature exceeded 88° F., that seven of the shad died. Even though we pumped cooler well water into the ponds, we were unable to keep the water at a temperature that would permit the remaining shad to survive. By July 3, all were dead.

#### Literature Cited

Sykes, J. E.

1950. A method for transporting fingerling shad. *Prog. Fish-Cult.* 12 (3): 153-159.



Weir installed by the Fish and Wildlife Service on the Ocqueoc River, Michigan, in order to catch sea lampreys.